

OS24: The 24th International Symposium on Advanced Fluid Information (AFI-2024)

IFS Collaborative Research Forum

November 19, 2024
Exhibition Hall 1-A

13:10-14:40 CRF-1 to 25, 32, 42, 72, 76 Short Oral Presentation
14:50-15:35 CRF-1 to 25, 32, 42, 72, 76 Poster Presentation

November 20, 2024
Exhibition Hall 1-A

9:00-10:30 CRF-26 to 51 (except CRF-32, 42) Short Oral Presentation
10:40-12:10 CRF-52 to 77 (except CRF-72, 76) Short Oral Presentation
12:10-13:00 CRF-26 to 77 (except CRF-32, 42, 72, 76) Luncheon Poster Session

- CRF-1 **Plan to Study the Surface Flow of a Small Rotor Blade with a Vortex Generator**
Hikaru Otsuka, Haruto Sasaki, Hiroshi Tokutake (Kanazawa University, Japan),
Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan), Honoka Osaki, Daisuke
Sasaki (Osaka Metropolitan University, Japan), Yuki Kawamoto (Tokai University,
Japan)
- CRF-2 **Smoke-Visualized Wake of Quadrotor in Ground Effect**
Hikaru Otsuka, Yukitaka Kobayashi, Shunei Akaba, Hiroshi Tokutake (Kanazawa
University, Japan), Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku
University, Japan)
- CRF-3 **Conceptual Study on a Conventional Micro-sized Mars Airplane with Stowable and
Deployable Membrane Wings**
Soshi Kudo, Taisei Takagi, Hikari Kono, Takuto Masaki, Sota Oshima, Masahiro
Kanazaki (Tokyo Metropolitan University, Japan), Tsubasa Ikami, Hiroki Nagai
(Tohoku University, Japan)
- CRF-4 **Measurement of Three-Dimensional Density Field around Hayabusa Capsule
Model Using Monochrome Random Dot Pattern at Two Different Moments**
Masato Yamagishi, Sumitaka Nogi, Nao Kosaka, Masanori Ota (Chiba University,
Japan), Tatsuro Inage (Shonan Institute of Technology, Japan), Yukiya Takikawa,
Kiyonobu Ohtani, Hiroki Nagai (Tohoku University, Japan)
- CRF-5 **Numerical Simulation for High-speed and Low-temperature Plasma Flows in a
Space Transport System**
Masayuki Takahashi, Soichiro Suzuki, Hiroyuki Suzuki, Koki Ito, Hiroki Nagai
(Tohoku University, Japan)
- CRF-6 **Whole Field Prediction from Sparse Sensors Using Neural Networks**
Makoto Takagi (Waseda University, Japan), Tsubasa Ikami (Tohoku University,
Japan), Yasuhiro Egami (Aichi Institute of Technology, Japan), Hiroki Nagai
(Tohoku University, Japan), Takahiro Kashikawa, Koichi Kimura (Fujitsu Ltd.,
Japan), Yu Matsuda (Waseda University, Japan)

- CRF-7 **A Study on the Flow Characteristics near the Surface of Highly Acoustically Transparent Porous Materials**
Naoyuki Takeda, Taisei Kusano, Osamu Terashima (Toyama Prefectural University, Japan), Hiroki Nagai, Yasufumi Konishi, Tsubasa Ikami (Tohoku University, Japan), Toshihiko Komatsuzaki (Kanazawa University, Japan)
- CRF-8 **The Behavior of Local Geometries of Shock Wave Surfaces Propagating in Turbulent Flow**
Amane Kusuhata (Kyoto University, Japan), Kento Tanaka (Okayama University, Japan), Tomoaki Watanabe, Koji Nagata (Kyoto University, Japan), Yasumasa Ito (Nagoya University, Japan), Yuji Hattori (Tohoku University, Japan)
- CRF-9 **An Analysis of Self-Organization of Three Dimensional Turbulent Vortical Structure Derived from Interaction between Vortical Flow and Bundle of Vorticity Lines**
Katsuyuki Nakayama, Kaito Uchima, Kazuki Sakurai (Aichi Institute of Technology, Japan), Yuji Hattori (Tohoku University, Japan)
- CRF-10 **Thermometry of Oxygen Enriched Methane Flames using Near-infrared Emissions from Water Molecules**
Kaito Hirose, Fangsi Ren (The University of Tokyo, Japan), Koichi Omi (Gunma University, Japan), Kotaro Nakayama, Kakeru Uchida, Shinji Nakaya (The University of Tokyo, Japan), Hiromi Kondo, Shoya Hasegawa, Taku Kudo, Akihiro Hayakawa (Tohoku University, Japan), Mitsuhiro Tsue (The University of Tokyo, Japan)
- CRF-11 **Real-Fluid properties Using the Virial Equation of State Based on the Boltzmann-weighted Full-dimensional Potential**
Xin Zhang (Peking University, China), Hisashi Nakamura (Tohoku University, Japan), Hao Zhao (Peking University, China)
- CRF-12 **Feasibility Study of Ammonia Fueled Commercial Aircraft**
Tomoya Wada, Keigo Iijima (Tohoku University, Japan), Daisuke Shimokuri (Hiroshima University, Japan), Akihiro Hayakawa, Hisashi Nakamura (Tohoku University, Japan), Yohei Fujimoto (Mitsubishi Heavy Industries Aero Engines, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-13 **Evaluation of Optimal Hydrogen-Ammonia Mixtures for Solid Oxide Fuel Cells**
Cole Wilhelm (Syracuse University, USA), Kenta Tamaoki, Hisashi Nakamura (Tohoku University, Japan), Jeongmin Ahn (Syracuse University, USA)
- CRF-14 **An Experimental and Kinetic Modeling Study for Autoignition Times of TMPI and TEPI Flame Retardants**
Frederick Nii Ofei Bruce, Zhihan Zhu (Northwestern Polytechnical University, China), Keisuke Kanayama, Hisashi Nakamura (Tohoku University, Japan), Yang Li (Northwestern Polytechnical University, China)
- CRF-15 **Analysis of Thermophysical Properties of Phase-Change Material Based Metal-Organic Frameworks Using Molecular Dynamics Simulation as a Reviewing Approach**
Muhammad Raditya Prakoso, Nasruddin Yusuf Rodjali (University of Indonesia, Indonesia), Takashi Tokumasu (Tohoku University, Japan)

- CRF-16 **Investigation of the Passivation Mechanism of TiO_x/Si Heterostructure by Molecular Dynamics Simulation**
Yuto Michishita, Shohei Fukaya (Nagoya University, Japan), Naoya Uene (Tohoku University, Japan), Kazuhiro Gotoh (Nagoya University / Niigata University, Japan), Takashi Tokumasu (Tohoku University, Japan), Noritaka Usami (Nagoya University, Japan)
- CRF-17 **Evaluation of Stability of Magnesium Oxide Deposited on Silicon Surface**
Satoru Kaneko (KISTEC / Tokyo Institute of Technology, Japan), Masahito Kurouchi, Manabu Yasui, Daishi Shiojiri, Masahiko Mitsunashi (KISTEC, Japan), Masahiro Yoshimura (KISTEC / Tokyo Institute of Technology, Japan), Ruei-Sung Yu (Asia University, Taiwan), Shigeo Yasuhara (Japan Advanced Chemicals, Japan), Musa Mutlu Can (Istanbul University, Turkey), Sumanta Kumar Sahoo (Radhakrishna Institute of Technology and Engineering, India), Ionita Mariana (University Politehnica of Bucharest, Romania), Kripasindhu Sardar, Takashi Tokumasu (Tohoku University, Japan)
- CRF-18 **Characterization of Particulate Morphology Generated from Lithium-Ion Battery Combustion Processes**
Samuel L. Manzello (Reax Engineering, USA / Tohoku University, Japan), Sayaka Suzuki (Tokyo Institute of Technology, Japan), Kaoru Maruta (Tohoku University, Japan)
- CRF-19 **PECT Signal Processing Algorithm for Better Thickness Quantification of Ferromagnetic Material**
Shejuan Xie, Shuyan Yang, Lihua Guo, Guohang Lu, Zhenmao Chen (Xi'an Jiaotong University, China), Tetsuya Uchimoto, Toshiyuki Takagi (Tohoku University, Japan)
- CRF-20 **Research on the Antibacterial Effect of Ag⁺ and Cu-Containing Carbon Films Using the Self-Exudation Effect of Contained Metal Components**
Minoru Goto (National Institute of Technology, Ube College, Japan), Sho Takeda, Hiroyuki Miki (Ishinomaki Sensyu University, Japan), Kosuke Ito (Nihon University, Japan), Tetsuya Uchimoto (Tohoku University, Japan)
- CRF-21 **Exploring the Effects of Shear Stress Magnitude and Variation on Endothelial Injury: From Current Evidence to In Vitro Experiment of Cellular Responses**
Mingzi Zhang (Macquarie University, Australia), Hanif Saifurrahman, Zi Wang, Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)
- CRF-22 **Interaction between Aortic Stiffness and Carotid Arterial Stiffness: Computational Simulations Using a Realistic Arterial Model**
Yujie Li, Marjana Petrova, Craig S. McLachlan (Torrens University Australia, Australia), Makoto Ohta (Tohoku University, Japan)
- CRF-23 **Computational Hemodynamics in Intracranial Aneurysms: Unveiling Insights into Hemodynamic Complexity**
Muhammed Albadawi (Alexandria University, Egypt), Ryuhei Yamaguchi (Tohoku University, Japan), Khalid M. Saqr (Arab Academy for Science, Technology and Maritime Transport, Egypt), Makoto Ohta (Tohoku University, Japan)

- CRF-24 **Development of Transcranial Doppler-Computed Tomography Fusion Imaging System Based on Sensors, Artificial Intelligence, and Phantom**
Eunike Kristianti, Ilsa Rostiana, Nurazizah Rizkiana Marali, Muhammad Faiz Syukra, Muhammad Shiddiq Sayyid Hashuro (Bandung Institute of Technology, Indonesia), Makoto Ohta (Tohoku University, Japan)
- CRF-25 **Numerical Simulation of the Effect of Viscosity on the Directional Movement of Droplets on the Bioinspired Micro/Nanostructured Surfaces**
Shiliang Chen, Hanbing Zhang, Bao Guo, Tianming Du, Aike Qiao (Beijing University of Technology, China), Hongfang Song (Capital Medical University, China), Wenyu Fu (Beijing Union University, China), Hitomi Anzai, Makoto Ohta (Tohoku University, Japan)
- CRF-26 **Effect of Atomization Characteristics of Two-Fluid Nozzle on Radiative Shielding of Mist for Heat Stroke Prevention against Thermal Radiation from the Ground Surface**
Hiroki Gonome, Masato Jono, Kiyoto Kawai, Wenjing Xing (Yamagata University, Japan), Shuichi Moriya, Junnosuke Okajima (Tohoku University, Japan), Takuma Kogawa (National Institute of Technology, Hachinohe College, Japan)
- CRF-27 **Pore-Scale Simulation of Mass Transfer during Supercritical Fluid Remediation for Soil Contaminants**
Yingxue Hu, Yusong Xu (Xi'an Jiaotong University, China), Yuki Kanda, Atsuki Komiya (Tohoku University, Japan)
- CRF-28 **Combined In situ & Ex situ, Multi-scale Stress Measurements in Crystalline Geothermal Reservoirs**
Yusuke Mukuhira (Tohoku University, Japan), Xiaodong Ma, Shihuai Zhang (University of Science and Technology of China, China), Takatoshi Ito (Tohoku University, Japan)
- CRF-29 **Direct Numerical Simulation of a Vertical Natural Convection Boundary Layer in Water**
Junhao Ke, Steven Armfield (The University of Sydney, Australia), Atsuki Komiya (Tohoku University, Japan), Nicholas Williamson (The University of Sydney, Australia)
- CRF-30 **Numerical Investigation of a Truncated Nanofluid-based Non-imaging Concentrating Photovoltaic Thermal (CPVT) System**
Abid Ustaoglu (Bartın University, Turkey / Tohoku University, Japan), Volkan Akgül (Bartın University, Turkey), Bilal Kursuncu (Bartın University, Turkey / Tohoku University, Japan), Junnosuke Okajima (Tohoku University, Japan)
- CRF-31 **Advection-diffusion Solution of the Internal MRI Environment for Analysis of Brain Function with Olfactory Stimulation**
Yusuke Inoue (Asahikawa Medical University, Japan), Akihiro Yamada (Komatsu University, Japan), Terumi Yurimoto, Fumiko Seki (Central Institute for Experimental Medicine and Life Science, Japan), Yoshiaki Takewa (Asahikawa Medical University, Japan), Junnosuke Okajima (Tohoku University, Japan)

- CRF-32 **Study on Micro-scale Evaporation for Heat Transfer Enhancement**
Junnosuke Okajima, Yutaro Naka (Tohoku University, Japan), Henrik Sontheimer, Tatiana Gambaryan-Roisman, Peter Stephan (Technical University of Darmstadt, Germany)
- CRF-33 **Molecular Dynamics Study for Interfacial Structure and Affinity between Surface-modified Metal Oxide and Binary Mixtures of Organic Solvents**
Takamasa Saito, Yuto Sato, Masaki Kubo, Eita Shoji, Gota Kikugawa, Donatas Surblys, Atsuki Komiya (Tohoku University, Japan)
- CRF-34 **A Molecular Dynamics Investigation of Ionic Conductivity in YSZ Phase Transitions**
Yuting Guo, Taiyo Taniuchi, Keisho Fukumoto (Kyoto University, Japan), Taku Ohara (Tohoku University, Japan), Masashi Kishimoto, Hiroshi Iwai (Kyoto University, Japan)
- CRF-35 **Permeability of CO₂ Gases through DPPC Lipid Membranes using Molecular Dynamics Simulation**
Fakhri Putra Nasution (University of Indonesia, Indonesia), Fayza Yulia (Universitas Pertamina, Indonesia), Nasruddin Yusuf Rodjali (University of Indonesia, Indonesia), Takuya Mabuchi (Tohoku University, Japan)
- CRF-36 **Analysis of Heat and Momentum Transport Characteristics Through Droplets Inside Nano-order Channels**
Akinori Fukushima (University of Fukui, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-37 **Multi-scale Analysis of Oxygen Ion Conduction Property in Solid Oxide Electrolyte Membrane**
Takumi Ijichi (Tohoku University, Japan), Hiroki Nagashima (University of the Ryukyus, Japan), Cole Wilhelm, Aliza Willsey, Jeongmin Ahn (Syracuse University, USA), Takashi Tokumasu (Tohoku University, Japan)
- CRF-38 **Molecular Dynamics Study of Interfacial Nano-Bubble**
Hiroki Nagashima (University of the Ryukyus, Japan), Yusuke Jonosono (Tohoku University, Japan), Shinichi Tsuda (Kyushu University, Japan), Takashi Tokumasu (Tohoku University, Japan)
- CRF-39 **Study on the Injection Process of Next-Generation Liquefied Fuels**
Noritsune Kawaharada (National Traffic Safety and Environment Laboratory, Japan), Ippei Oshima (Tohoku University, Japan)
- CRF-40 **Gas Component Identification for Laser-Induced Cavitation Bubbles**
Siwei Liu, Kaito Nitto (Tohoku University, Japan), Outi Supponen (ETH Zurich, Switzerland), Tomoki Nakajima (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Federale de Lausanne, Switzerland), Takehiko Sato (Tohoku University, Japan)
- CRF-41 **Experiment and Molecular Dynamics Simulation for Plasma-Dependent Interface**
Kosuke Tachibana (Oita University, Japan), Siwei Liu (Tohoku University, Japan), Satoshi Uchida (Tokyo Metropolitan University, Japan), Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)

- CRF-42 **Experimental Investigation on Relationship between Flow Dynamics and Micro-structure in Cellulose Nano-fiber Dispersion**
Masaaki Motozawa (Shizuoka University, Japan), Hidemasa Takana (Tohoku University, Japan), Tomoaki Chinju (Shizuoka University, Japan)
- CRF-43 **Two-dimensional Analysis of Flow through an Orifice Using Extended Finite Element Method**
Takumi Shimabuku, Suguru Miyauchi (University of Miyazaki, Japan), Kenichi Funamoto (Tohoku University, Japan)
- CRF-44 **Development of a Plasma-Liquid Interfacial Reactor on a Microfluidic Chip**
Hiroyuki Yoshiki (National Institute of Technology, Sendai College, Japan), Akihiro Enta (National Institute of Technology, Tsuruoka College, Japan), Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)
- CRF-45 **Membrane Permeation Characteristics of Reactive Oxygen Species under Cold Atmospheric Pressure Plasma Irradiation**
Satoshi Uchida, Yuki Iijima, Rinha Tanaka (Tokyo Metropolitan University, Japan), Ryo Ninomiya (Simplex Holdings, inc., Japan), Yuto Ninagawa (Yokogawa Electric Corporation, Japan), Ippei Yagi (Tokyo Metropolitan University, Japan), Kosuke Tachibana (Oita University, Japan), Akinori Oda (Chiba Institute of Technology, Japan), Takehiko Sato (Tohoku University, Japan)
- CRF-46 **Electric Current Measurement of Nanodroplets Generated by Condensation of Water Vapor with High-speed Flow**
Jiun-Shian Lee (Tohoku University, Japan), Yun-Chien Cheng (National Yang Ming Chiao Tung University, Taiwan), Siwei Liu, Tomoki Nakajima, Takehiko Sato (Tohoku University, Japan)
- CRF-47 **Generation of High-Speed Ultrafine Droplets and Droplets Characteristics**
Takehiko Sato (Tohoku University, Japan), Seiji Kanazawa, Kosuke Tachibana (Oita University, Japan), Siwei Liu, Tomoki Nakajima (Tohoku University, Japan)
- CRF-48 **Pressure Measurement in Laser-Induced Cavitation Bubble Using Discharge Characteristics**
Satoshi Uehara, Takehiko Sato (Tohoku University, Japan), Mohamed Farhat (Ecole Polytechnique Federale de Lausanne, Switzerland), Seiji Kanazawa (Oita University, Japan), Yuka Iga, Tomoki Nakajima, Sayaka Kamata, Siwei Liu (Tohoku University, Japan)
- CRF-49 **Schlieren Imagery of Low Frequency AC Voltage EHD of Phase Change Materials**
Ethan Chariandy, James S. Cotton (McMaster University, Canada), Takehiko Sato, Siwei Liu (Tohoku University, Japan)
- CRF-50 **Multidimensional Evaluation of Aircraft Design: The Crossover Between Aesthetics and Performance/Safety**
Jun Shintake, Muhammad Naveed Raza (The University of Electro-Communications, Japan), Ryo Saito, Yoshiaki Abe (Tohoku University, Japan)
- CRF-51 **Layout of Ducted Fan between Aero-Train Wings**
Chenguang Lai, Junhai He (Chongqing University of Technology, China), Shigeru Obayashi (Tohoku University, Japan)

- CRF-52 **Emulating Atherosclerotic Conditions on an Organ-on-a-Chip**
Makoto Sasaki, Kenichi Funamoto (Tohoku University, Japan), Eugenia Corvera Poiré (National Autonomous University of Mexico, Mexico)
- CRF-53 **Numerical Analysis of the Flow around a Wing-body Combination Model with Three-degree-of-freedom Flapping**
Motohiro Mitsunaga, Tadateru Ishide, Hajime Izumi, Haruka Tamagawa (National Institute of Technology, Kisarazu College, Japan), Atsushi Harada (Nippon Bunri University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-54 **Backup Power Supply using Flapping Wing Antennas**
Hajime Izumi, Tadateru Ishide (National Institute of Technology, Kisarazu College, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-55 **Nonlinear Aeroelastic Simulation Framework with Machine Learning for High Aspect Ratio Wings**
Kento Shimura (Tohoku University, Japan), Hao He, Hiroki Yamashita, Hiroyuki Sugiyama (University of Iowa, USA), Yoshiaki Abe (Tohoku University, Japan), Takanori Haga (Japan Aerospace Exploration Agency, Japan), Keisuke Otsuka (Tohoku University, Japan)
- CRF-56 **Unsteady RANS Simulations of Vortex-shedding using CFD-driven Machine-learned Turbulence Closure**
Atsuhito Kawabata, Aiko Yakeno (Tohoku University, Japan), Richard D. Sandberg (The University of Melbourne, Australia)
- CRF-57 **Explainable Machine Learning for Aerodynamic Design Exploration**
Pramudita Satria Palar, Lavi Rizki Zuhul (Bandung Institute of Technology, Indonesia), Koji Shimoyama (Kyushu University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-58 **Analysis of Aerodynamic Forces and Flow Field on a Roadable Aircraft against Crosswind during Landing**
Seiichiro Morizawa (National Institute of Technology, Okinawa College, Japan), Ryotaro Sakai (Japan Aerospace Exploration Agency, Japan), Ryota Kikuchi (Nagoya University, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-59 **Numerical Investigation of the Flow Field on the Railway at Naha Airport**
Seiichiro Morizawa, Namiki Gima (National Institute of Technology, Okinawa College, Japan), Aiko Yakeno (Tohoku University, Japan)
- CRF-60 **Aerodynamic Discrepancies of an Aircraft Considering the Running Engine**
Jan Mueller, Kazuhisa Chiba (The University of Electro-Communications, Japan), Yoshinori Oba (IHI Corporation, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-61 **Scanning Stereoscopic PIV for 3D Wake Structure of Cylindrical Blades with Fins on a Magnus Wind Turbine**
Ikki Okuyama, Kenichi Nakagawa, Hiroaki Hasegawa (Utsunomiya University, Japan), Shigeru Obayashi (Tohoku University, Japan)

- CRF-62 **Advancement in Feedback Control Using Sparse Processing PIV**
Rodrigo Viguera, Ryo Naramura, Yasuo Sasaki (Nagoya University, Japan), Yoshiaki Abe (Tohoku University, Japan), Taku Nonomura (Nagoya University, Japan)
- CRF-63 **Construction of Actuator Placement Optimization Framework Toward Realization of Efficient Weather Modification Technology**
Hiroataka Naruse, Takayuki Nagata, Yasuo Sasaki, Masahito Watanabe (Nagoya University, Japan), Keigo Yamada, Junshi Ito, Jaka Anugrah Ivanda Paski (Tohoku University, Japan), Daisuke Tsubakino (Nagoya University, Japan), Shigeru Obayashi (Tohoku University, Japan), Taku Nonomura (Nagoya University, Japan)
- CRF-64 **High Sensitivity and Quantitative Visualization around High-speed Projectile**
Toshiharu Mizukaki, Yuki Iwamoto, Ibuki Nagayama (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-65 **Hypervelocity Impact Experiments for Risk Assessment of Inflatable Structures**
Hikaru Takahashi, Yoshihiro Sugiyama, Yuki Kikuji, Kiyonobu Ohtani, Yushin Hara, Kanjuro Makihara (Tohoku University, Japan)
- CRF-66 **Attenuation Effect of Shock Environment in Supersonic Flows using the Soft Body**
Naoki Makita, Hayate Ueda (Aichi Institute of Technology, Japan), Kiyonobu Ohtani (Tohoku university, Japan), Nobuya Sato (Aichi Institute of Technology, Japan), Toshihiro Ogawa, Yasufumi Konishi (Tohoku university, Japan), Kazutaka Kitagawa (Aichi Institute of Technology, Japan)
- CRF-67 **Experimental and Numerical Studies on the Correlation between Pressure Rise Time and the Turbulence Length Scale in Shock-turbulence Interaction**
Yohei Arakawa, Takahiro Ukai (Osaka Institute of Technology, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-68 **Fundamental Research on a New AA-PSP for Enhancing the Accuracy of Pressure Field Measurements on the Surface of Supersonic Projectiles**
Daiju Numata, Yuma Kawamata, Takeru Kawashima (Tokai University, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-69 **Fundamental Study of Weak Radiation behind Air Shock Waves**
Masato Funatsu, Keisuke Shimoyama (Gunma University, Japan), Kenji Shibusawa (National Institute of Technology, Ibaraki College, Japan), Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-70 **Precise Measurement of the Effect of Deceleration on the Drag Coefficient**
Tomohiro Miyazaki, Takamasa Kikuchi (Nihon University, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Akinori Muramatsu (Nihon University, Japan)
- CRF-71 **Shock Tube Experiments to Reveal the Dynamics of Ballistic Projectiles in Explosive Volcanic Eruptions**
Kae Tsunematsu (Yamagata University, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Nils Steinau (Yamagata University, Japan), Kazuya Seo, Akuto Kaneko (Kogakuin University, Japan)

- CRF-72 **Impact Energy Absorption Properties of Artificial Pumice**
Kohei Tateyama, Hiroyuki Fujiki (Muroran Institute of Technology, Japan),
Kiyonobu Ohtani (Tohoku University, Japan)
- CRF-73 **Characterizing Atmospheric Conditions for Sonic Boom Loudness**
Hiroshi Yamashita, Bastian Kern (German Aerospace Center, Germany), Takahiro Ukai (Osaka Institute of Technology, Japan), Takashi Misaka (National Institute of Advanced Industrial Science and Technology, Japan), Shigeru Obayashi (Tohoku University, Japan)
- CRF-74 **Prediction and Optimisation of Axisymmetric Internal Shock and Flow Structure**
Hideaki Ogawa, Kohei Omiya, Aoi Shibakita, Chihiro Fujio (Kyushu University, Japan), Kiyonobu Ohtani (Tohoku University, Japan), Sannu Mölder (Ryerson University, Canada), Evgeny Timofeev, Ben Shoesmith, Rabi Tahir (McGill University, Canada), Taro Handa, Yasumasa Watanabe (Toyota Technological Institute, Japan), Justin Kin Jun Hew, Roderick W. Boswell (Australian National University, Australia), Thiruchengode Muruganandam, V. Vijayakrishnan, Akash Marade (Indian Institute of Technology Madras, India)
- CRF-75 **Investigation of Three Equilateral Triangles with Tandem Arrangement using Lattice Boltzmann Method and Proper Orthogonal Decomposition**
Bryan Goh, Kemas Zakaria, Pramudita Satria Palar (Bandung Institute of Technology, Indonesia), Viet Dung Duong (Vietnam National University, Vietnam), Lavi Rizki Zuhail (Bandung Institute of Technology, Indonesia), Akira Oyama (Japan Aerospace Exploration Agency, Japan), Aiko Yakeno (Tohoku University, Japan)
- CRF-76 **Study on Heat Flux Prediction Method for Cartesian-Mesh CFD under Supersonic Flows**
Daisuke Sasaki, Mio Yukimitsu, Shinichiro Ogawa (Osaka Metropolitan University, Japan), Shoya Yoshinaga, Hideki Moriai (Kanazawa Institute of Technology, Japan), Shun Takahashi (Tokai University, Japan), Aiko Yakeno, Shigeru Obayashi (Tohoku University, Japan)
- CRF-77 **Transition Physics and Turbulence Modeling to Reproduce It**
Aiko Yakeno (Tohoku University, Japan), Jens Fransson (KTH Royal Institute of Technology, Sweden)

OS25: IFS Lyon Center Collaborative Research Forum

November 20, 2024

EX-2

- OS25-1 & OS7-17 9:10-9:50 **Numerical Methods for Solving Multimode Giesekus Viscoelastic Fluid Flows**
(Invited)
Shihe Xin, Seyedhadi Abdollahzadeh, Ronnie Knikker (INSA Lyon, France), Denis Siginer (Universidad de Santiago de Chile, Chile), Mhamed Botaous (INSA Lyon, France)
- OS25-2 9:50-10:10 **Identification of Dominant Modes of Flow Between Rotating Conical Cones by Linear Stability and DMD Analyses**
Hiraku Yata, Kana Akinaga (Akita University, Japan), Atsuki Komiya (Tohoku University, Japan), Takahiro Adachi (Akita University, Japan)
- OS25-3 10:10-10:30 **Coupled Computing of Fluid-Structure Interaction Problems for Multiphase Energy Systems**
Jun Ishimoto (Tohoku University, Japan), Thomas Elguedj (INSA de Lyon, France)
- OS25-4 10:40-11:00 **Coarse-grained Lattice Simulations for Turing Patterns on Membranes**
Elie Bretin, Camille Carvalho, Roland Denis (Universite Claude Bernard Lyon 1, France), Fumitake Kato, Hiroshi Koibuchi (National Institute of Technology (KOSEN), Ibaraki College, Japan), Simon Masnou (Universite Claude Bernard Lyon 1, France), Madoka Nakayama (Tokyo Medical and Dental University, Japan), Sohei Tasaki (Hokkaido University, Japan), Tetsuya Uchimoto (Tohoku University / ELyTMax, CNRS-Universite de Lyon-Tohoku University, Japan)
- OS25-5 11:00-11:20 **Analysis of Frequency Spectrum of Ultrasonic Pulse-Echo Wave Reflected on Periodic Rough Surface**
Kotaro Fujii, Hiroyuki Nakamoto (Kobe University, Japan), Philippe Guy (INSA Lyon, France), Tetsuya Uchimoto (Tohoku University / ELyTMax IRL3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan)
- OS25-6 11:20-11:40 **Enhancement of Protein Mass Transfer using Ultrasound Induced Flow and Macro-pore Membrane**
Atsuki Komiya (Tohoku University / ELyTMax IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Ruiyao Zhu (Tohoku University, Japan), Valéry Botton, Sophie Miralles (INSA Lyon, France)
- OS25-7 11:40-12:00 **Active yet Precise Control of Protein Mass Transfer by Membranes**
Atsuki Komiya (Tohoku University / ELyTMax IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Juan F. Torres (Australian National University, Australia), Ruiyao Zhu (Tohoku University, Japan), Sébastien Livi (INSA Lyon, France)

- OS25-8
14:50-15:10 **Investigation of Electric Field Induced Bending of Doped Epoxy-amine Elastomers with Ionic Liquids**
Djasma Djoumoi, Laurence Seveyrat, Véronique Perrin, Florent Dalmas, Sébastien Livi, Joël Courbon (INSA Lyon, France), Hidemasa Takana (Tohoku University, Japan / Lyon Center, IFS -Tohoku U., Université de Lyon, France), Jean-Yves Cavaillé (Lyon Center, IFS -Tohoku U., Université de Lyon, France / ELyTMaX IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Gildas Coativy (INSA Lyon, France)
- OS25-9
15:10-15:30 **Parametric Study of Ion Flow Through Polymer Strip Submitted to a High Voltage**
Joel Courbon (INSA Lyon, France), Hidemasa Takana (Tohoku University, Japan), Gildas Coativy (INSA Lyon, France), Jean-Yves Cavaillé (IFS Lyon Center, France)
- OS25-10
15:30-15:50 **Bending Strength of Density Gradient Designed Silicon Carbide Plate by the Direct Ink Writing**
Hiroki Kurita, Teppei Kudo, Teruyoshi Kanno, Zhenjin Wang, Fumio Narita (Tohoku University, Japan)
- OS25-11
15:50-16:10 **Ultrasound Study of Hydrolytic Ageing of Polymers**
Séverine Boucaud-Gauchet, Jules Caritey, Ghuilem Jusserand, Thibaut Devaux (Université de Tours, France), Sébastien Livi (INSA Lyon, France), François Vander Meulen (Université de Tours, France), Tetsuya Uchimoto (Tohoku University, Japan), Nicolas Mary (INSA Lyon, France)
- OS25-12
16:20-16:40 **Monitoring Eukaryotic Cell Functions under Various Hypoxic Conditions with Microfluidic Based Oxygenators**
Nasser Ghazi (University Claude Bernard Lyon 1, France), Naoto Kawahara, Satomi Hirose, Shohei Yanagita, Kenichi Funamoto (Tohoku University, Japan), Christophe Anjard, Jean-Paul Rieu (University Claude Bernard Lyon 1, France)
- OS25-13
16:40-17:00 **Investigation of a Predictive Therapeutic Response Under Controlled Oxygen Condition in Cancer Patient-Derived Organoids**
Satoshi Aratake (Tohoku University, Japan), Morgane Roinard, Zhouxing Su, Jean-Paul Rieu (University Claude Bernard Lyon 1, France), Kenichi Funamoto (Tohoku University, Japan), Nicolas Aznar (University Claude Bernard Lyon 1, France)
- OS25-14
17:00-17:20 **Super-Resolution Reconstruction of Microdefects on Metal Spherical Surfaces using Eddy Current Pulsed Thermography**
Lihua Guo, Ling He, Zongfei Tong, Shejuan Xie, Zhenmao Chen (Xi'an Jiaotong University, China), Tetsuya Uchimoto, Toshiyuki Takagi (Tohoku University, Japan)
- OS25-15
17:20-17:40 **Analysis of the Drift Velocity Variation of Carbon in Steel under Electric Field**
Ryuta Onozuka (Tohoku University, Japan), Patrice Chantrenne (INSA Lyon, France), Takashi Tokumasu (Tohoku University, Japan)

OS25-16

17:40-18:00

Damage due to Water Jet Impacts on ZnS

Pierre Gantier (INSA Lyon / Safran Electronics & Defense, France), Daniel Nélías, Nicolas Boisson, Thibaut Chaise, Cyril Mauger (INSA Lyon, France), Pascal Dumont, Pascal Junique (Safran Electronics & Defense, France)

The 24th International Symposium on Advanced Fluid Information (AFI-2024)
Fluids Science Research Award Lectures

November 19, 2024

EX-2

16:30-17:00 FRA-1	Research on Solid Material Flammability in Microgravity for Fire Safety in Space Osamu Fujita (Hokkaido University, Japan)
17:00-17:30 FRA-2	Struggling with the multiscale structures of bubbly flows Shu Takagi (The University of Tokyo, Japan)
17:30-18:00 FRA-3	Advanced Flow Measurement and Control Based on Data Driven Mode Decomposition Taku Nonomura (Nagoya University, Japan)